

AMENDMENTS TO THE CLAIMS

Pursuant to 37 C.F.R. § 1.121 the following listing of claims will replace all prior versions, and listings, of claims in the application.

Claim 1 (currently amended): A clamp mechanism of a throwaway tip for pressing a throwaway tip, the clamp mechanism comprising:

a tool body having a tip body;

~~in which~~ a fitting hole is formed through a the tip body;

a tip fitting seat formed in the tool body;

a contact portion of the tip body formed in an opening of the fitting hole; and

a clamp member comprising:

a shaft portion inserted into the fitting hole; by the use of

a head portion of a clamp member having a shaft portion inserted into which passes through the fitting hole, the head portion having an outer diameter equal to or greater than that of the shaft portion and clamping the throwaway tip to the tip fitting seat by allowing the clamp member to advance toward the tip fitting seat in a central axis direction of the shaft portion; and

a section of a back surface of the head portion, the section being perpendicular to the central axis direction and having a circle shape centered at the central axis line;

~~and the head portion with an outer diameter larger than that of the shaft portion and thus clamping the throwaway tip to a tip fitting seat by allowing the clamp member to advance toward the tip fitting seat of a tool body in the central axis direction of the shaft portion,~~

~~wherein in the clamp member, a section, which is perpendicular to the central axis direction, of the back surface of the head portion has a circle shape centered at the central axis line, and~~

wherein in the tip body of the throwaway tip, the head portion of the clamp member can pass through the fitting hole, and a contact portion wherein with which a part of the back surface of the head portion comes ~~in~~ into contact with the contact portion formed in an opening of the fitting hole when the clamp member is allowed to advance ~~is formed in an opening of the fitting hole.~~

Claim 2 (currently amended): The clamp mechanism according to Claim 1, wherein the contact portion of the tip body has a crescent shape which is convex from the inner circumference of the fitting hole toward the outer circumference as seen in the direction along the a center line of the fitting hole.

Claim 3 (currently amended): The clamp mechanism according to Claim 1 ~~or 2~~, wherein the central axis line of the clamp member is tilted with respect to ~~the~~ a center line of the fitting hole.

Claim 4 (currently amended): The clamp mechanism according to Claim 3, further comprising:

wherein a first portion, which is of the contact portion, the first portion being located in a plane including the central axis line of the clamp member and the center line of the fitting hole, of the contact portion is and is more convex in the direction along the central axis line than other portions.

Claim 5 (currently amended): The clamp mechanism according to Claim 3 ~~or 4~~, further comprising:

wherein a plurality of the fitting holes formed in the tip body, each of the plurality of fitting
holes having the respective center lines parallel to each other is formed in the tip body;

a plurality of the clamp members provided in the tool body, each of the plurality of clamp members corresponding to the a respective fitting holes; is provided in the tool body, and
~~the central axis lines of each of the plurality of clamp members having a respective central axis line which extend~~ extends in a parallel direction or in a direction intersecting each other at an intersection angle of 5° or less as seen in the direction along the center lines.

Claim 6 (currently amended): The clamp mechanism according to ~~any one of Claims~~ Claim 3, further comprising: 3 to 5, wherein

a plurality of the fitting holes formed in the tip body, each of the plurality of fitting holes having the a respective center lines line parallel to each each other ~~other is formed in the tip body,~~

a plurality of the clamp members provided in the tool body, each of the plurality of clamp members corresponding to the a respective fitting holes hole is provided in the tool body,

a mark provided in the tip body to indicating indicate an order of in which ~~allowing the clamp members to advance toward the tip fitting seat is provided in the tip body.~~

Claim 7 (currently amended): The clamp mechanism according to ~~any one of Claims 1 to 6, wherein~~ Claim 1. further comprising:

a screw portion provided at an end of the shaft portion opposite to the head portion in the clamp member, the screw portion being inserted into the tool body, is provided at the end of the shaft portion opposite to the head portion in the clamp member, and

wherein the clamp member is allowed to advance toward the tip fitting seat while rotating around the central axis line over the whole circumference.

Claim 8 (currently amended): The clamp mechanism according to ~~any one of Claims 1 to 7~~Claim 1, wherein further comprising:

a large-diameter portion having an outer diameter larger than that of the fitting hole, the large-diameter portion being is provided at ~~the~~an end of the shaft portion opposite to the head portion in the clamp member.

Claim 9 (new): A clamp mechanism for a milling tool, the clamp mechanism comprising:

a clamp member having a back surface and a head portion;

a tool body having a disk shape, the tool body being centered on an axis line of rotation, the tool body comprising:

- an outer circumferential surface; and
- a lower surface;

a tip pocket formed on an outer circumference of the milling tool, the tip pocket having a concave shape;

a tip fitting seat formed in a wall of the tip pocket, the tip fitting seat being directed towards the direction of rotation of the milling tool;

a tip body having a substantially square shape, the tip body comprising a plurality of cutting edges formed at a corner portion of the tip body;

a fitting hole formed through the tip body of the tool body;

a plurality of contact portions formed in the opening of the fitting hole, each of the plurality of contact portions forming a crescent shape as seen in the direction along a center line,

wherein a part of the back surface of the head portion of the clamp member contacts a respective one of the plurality of contact portions which is located on a side opposite to a respective cutting edge to clamp the tip body.

Claim 10 (new): A clamp mechanism of a throwaway tip for pressing a throwaway tip, the clamp mechanism comprising:

- a plurality of fitting holes formed in a tip body of a tool holder, each of the plurality of fitting holes having respective center lines parallel to each other;

- a plurality of contact portions of the tip body formed in an opening of the fitting hole; and

- a plurality of clamp members provided in the tool body, each of the plurality of clamp members corresponding to a respective fitting hole, and each of the plurality of clamp members comprising:

- a shaft portion inserted into the fitting hole;

- a head portion which passes through the fitting hole, the head portion having an outer diameter equal to or greater than that of the shaft portion and clamping the throwaway tip to the tip fitting seat by allowing the clamp member to advance toward the tip fitting seat in a central axis direction of the shaft portion; and

- a section of a back surface of the head portion, the section being perpendicular to the central axis direction and having a circle shape centered at the central axis line;

- wherein a part of the back surface of a respective head portion comes into contact with the respective contact portion formed in an opening of the fitting hole when the respective clamp member is allowed to advance.